Amended Claims With Mark-ups to Show Changes Made

10. (Twice Amended) A wireless data communication method in which at least one mobile switching center including a mobile connection control module, a mobile data path connection control module, a public network data path connection control module and a trunk connection control module are connected with at least one data network interworking unit by a first data path and a second data path, comprising:

inputting an identification number of a called party mobile station;

establishing a first call from a calling party mobile station to the mobile data network interworking unit and then establishing a first traffic channel;

calling a called party mobile station at the mobile data network interworking unit;

establishing a second call from said called party mobile station to the mobile data network interworking unit when a data response comes from said called party mobile station and then establishing a second traffic channel after the mobile data path connection module informs the public network data path connection control module of a normal state of said first data path;

establishing a call between the mobile switching center and the mobile data network interworking unit through the second data path; and

connecting said first and second traffic channels through at least one modem of the interworking unit.

21. (Twice Amended) [The] A wireless data communication method in which at least one mobile switching center having a mobile connection control module, a mobile data path connection control module, a public network data path connection control module and a trunk connection control module is connected with at least one data network interworking unit through a first data path and a second data path, comprising:

a) inputting an identification number of a called party mobile station;

b) establishing a first traffic channel after establishing a first call from a calling party mobile station to a first mobile data network interworking unit having at least one modem through a first mobile switching center;

c) calling a called party mobile station controlled by a second mobile switching center from said first mobile data network interworking unit through said public network data path connection control module and said trunk connection control module;

d) establishing a second traffic channel after a second call from said called party mobile station to a second mobile data network interworking unit having at least one modem is established when said called party mobile station [is responded] responds

and said mobile data path connection module informs said public network data path connection control module of a normal state of said first data path;

e) establishing a call between said public network data path connection control module and said second mobile data network interworking unit after said mobile data path connection control module informs said public network data path connection control module of the completion of channel establishment when said second traffic channel is completely established;

f) releasing the traffic channel between said mobile connection control module and said public network data path connection control module when the call establishment between the public network data path connection control module and said second mobile data network interworking unit is completed; and

g) connecting said public network data path connection control module with the trunk connection control module.

32. (Amended) An interworking unit for a wireless communication system, comprising:

a data path connector to couple to a mobile switching center;

a main processor to form a traffic channel of a mobile data path between a first mobile terminal and a second mobile terminal when a circuit data service option is detected by the mobile switching center from a base station;

a circuit data processor, coupled to the main processor and configured to analyze a signal transmitted from the first mobile terminal if a protocol between the first mobile terminal and the second mobile terminal is normally executed, and to transmit an identification number from the second terminal to the main processor; and

a switching circuit, configured to selectively switch a connection between the circuit data processor and the data path connector in accordance with a control signal from the main processor, wherein the circuit data processor comprises at least one modem.

REMARKS

Claims 1-8, 27-29, and 31-34 stand rejected under 35 U.S.C. § 103(a) over Boudreau et al. (U.S. Patent No. 5,369,681) (hereinafter "Boudreau"), in view of Jacobsohn (U.S. Patent No. 5,917,816). This rejection is respectfully traversed.

The asserted combination of references fails to establish a prima facie case of obviousness, as required by Section 103. For example, the combination of references fails to teach or suggest a mobile data communication system for a wireless data communication including, inter alia, a mobile switching center for detecting a service option included in the signal transmitted from base stations and base station controllers and for executing a circuit data service or a packet data service according to the detected service option, and at least one mobile data network interworking unit for establishing a traffic channel of the mobile data path and a call between a calling party mobile station and a called party mobile station when the mobile switching center performs the circuit data service, as recited in claim 1.

Additionally, the asserted combination of references fails to teach or suggest a mobile data communication system including, inter alia, a mobile switching center (MSC) configured to detect a service option included in a signal transmitted from at least one base station and base station controller and to execute a circuit data service or a packet data

service according to the detected service option, and at least one mobile data network interworking unit coupled to the MSC to establish a traffic channel of a mobile data path and a call between a calling party mobile station and called party mobile station when the mobile switching center performs the circuit data service, as recited in claim 27.

Finally, the asserted combination of references fails to teach or suggest an interworking unit for a wireless communication system including, inter alia, a main processor to form a traffic channel of a mobile data path between a first mobile terminal and a second mobile terminal when a circuit data service option is detected by the mobile switching center from a base station, a circuit data processor, coupled to the main processor and configured to analyze a signal transmitted from the first mobile terminal if a protocol between the first mobile terminal and the second mobile terminal is normally executed, and to transmit an identification number from the second mobile terminal to the main processor, and a switching circuit, configured to selectively switch a connection between the circuit data processor and the data path connector in accordance with a control signal from the main processor, as recited in claim 32 as amended.

Claims 1, 27, and 32 broadly recite features of the preferred embodiment. Additionally, claim 32 has been amended to more particularly recite features of the preferred embodiment. Referring to Figure 1 of the preferred embodiment, the

interworking unit 100 is coupled between a first mobile switching center and a second mobile switching center. Each mobile switching center 31a, 31b analyzes a signal transmitted from a base station 21, 22 to determine a service option and a switching function for switching the signal path according to the service option. Thus, a data signal path can be set up between a first mobile station and a second mobile station through only the base stations/base station controllers, the mobile switching centers, and the interworking unit.

Boudreau relates to a system for paging mobile stations within a cellular telecommunication system. Specifically, Boudreau teaches that when the cellular system sends a page request to a desired mobile terminal, the page request is first sent to the location area where the desired station last registered. If no response is received, a new page request is sent by the system to the paging area which includes the locations where the mobile station is "likely" to be found. Finally, if the page response is still not received, then a page request is sent to all of the locations within the service area.

In describing the method of transmitting the page, Boudreau teaches that each cell contains a base station with a transmitter, a receiver, and base station controller. Next, Boudreau recites that a mobile switching center (MSC) is connected by communication links such as cables to each of the base stations and to a fixed public switched telephone

network (PSTN) or an integrated services digital network (ISDN). See column 7, lines 22-32. Additionally, referring to Boudreau Figure 2, Boudreau teaches that portions of a coverage area for a particular MSC are organized into groupings to enable efficient use of system resources. See column 7, lines 53-58.

Although Boudreau recites a mobile switching center, Boudreau fails to teach or suggest any details of the mobile switching center. Thus, Boudreau fails to teach or suggest a mobile switching center for detecting a service option included in the signal transmitted from the base stations and the base station controllers. Boudreau further fails to teach or suggest that the mobile switching center executes a circuit data service or a packet data service according to the detected service option. Moreover, Boudreau fails to teach or suggest a main processor that forms a traffic channel of a mobile data path between a first mobile terminal and a second mobile terminal when a circuit data service option is detected by the mobile switching center from a base station, and that sends a signal to the switching circuit, to cause the switching circuit to selectively switch a connection between the circuit data processor and the data path connector.

Additionally, as the Patent Office admits, Boudreau further fails to teach at least one mobile data network interworking unit for establishing a traffic channel of a mobile

data path and a call between a calling party mobile station and a called party mobile station when the mobile switching center performs the circuit data service.

Jacobsohn is thus relied on to teach the features that are neither taught nor suggested by Boudreau. Jacobsohn relates to a centralized interworking function for a mobile radio network. Specifically, Jacobsohn teaches a centralized interworking function (CIWF) coupled to a plurality of mobile switching centers. The CIWF contains different interworking functions for adapting data transmission between several mobile switching centers and a PSTN. Each interworking function corresponds to a prescribed transmission node of the PSTN.

Referring to Figure 1 of Jacobsohn, Jacobsohn teaches that the CIWF is provided to establish data links to a telecommunications network. Further, Jacobsohn teaches that data is transmitted from a mobile station to a subscriber set of the telecommunications network, and that this is performed by setting up a data link via the mobile switching center from the mobile station to a data transmission node of the telecommunications network. See column 2, line 52 - column 3, line 4. Furthermore, Jacobsohn discloses that the data signals are adapted according to the GSM protocol. See column 3, lines 62-65. Specifically, the interworking function operates "bi-directionally" and includes a modem function to convert the digital data signals transmitted from the mobile switching center

to analog "acoustic" signals for transmission through the telecommunications network. See column 4, lines 8-13.

Moreover, Jacobsohn teaches that the primary method for using the interworking function is to receive data from the mobile switching centers, and loop that data, after conversion, back to the mobile switching center. Additionally, Jacobsohn recites that "it can also be envisioned" that data transmission could pass directly from the interworking function to the telecommunications network. See column 4, lines 33-38. No details, however, are given as to this "vision" of Jacobsohn.

Consequently, Jacobsohn fails to teach or suggest a mobile switching center for detecting a service option included in the signal transmitted from the base station and base station controllers, and also fails to teach or suggest that the mobile switching center executes a circuit data service or a packet data service according to the detected service option. Moreover, Jacobsohn fails to teach or suggest a main processor that forms a traffic channel of a mobile data path between a first mobile terminal and a second mobile terminal when a circuit data service option is detected by the mobile switching center from a base station, and that sends a signal to the switching circuit, to cause the switching circuit to selectively switch a connection between the circuit data processor and the data path connector. Finally, Jacobsohn fails to teach or suggest an interworking unit for

establishing a traffic channel of a mobile data path and a call between a calling party mobile station and a called party mobile station when the mobile switching center performs the circuit data service. Consequently, the asserted combination of references fails to establish a prima facie case of obviousness.

Claims 2-8 depend from claim 1, claims 29-31 depend from claim 27, and claims 33 and 34 depend from claim 32. These dependent claims are allowable for at least the reasons described above with respect to the corresponding independent claims. Hence, it is respectfully requested that this rejection be withdrawn.

Claims 10, 11, 13, 16, 17, 21, 35, and 36 stand rejected under 35 U.S.C. § 103(a) over Shrader et al. (U.S. Patent No. 5,521,963) (hereinafter "Shrader"), in view of Jacobsohn. This rejection is respectfully traversed.

The asserted combination of references fails to establish a prima facie case of obviousness, as required by Section 103. For example, the asserted combination of references fails to teach or suggest a wireless data communication method including, inter alia, establishing a first call from a calling party mobile station to a mobile data network interworking unit and then establishing a first traffic channel, calling a called party mobile station at the mobile data network interworking unit, establishing a second call from the called party station to the mobile data network interworking unit when a data response

comes from the called party mobile station and then establishing a second traffic channel after the mobile data path connection module informs the public network data path connection control module of a normal state of the first data path, establishing a call between the mobile switching center and the mobile data network interworking unit through the second data path, and connecting the first and second traffic channels through at least one modem of the interworking unit, as recited in amended claim 10.

The asserted combination of references also fails to teach or suggest a wireless data communication method including, inter alia, establishing a first traffic channel after establishing a first call from a calling party mobile station to a first mobile data network interworking unit having at least one modem through a first mobile switching center, establishing a second traffic channel after a second call from the called party mobile station to a second mobile data network interworking unit having at least one modem as established and releasing the traffic channel between the mobile communication control module and the public network data path connection control module when the call establishment between the public network data path connection control module and the second mobile data network interworking unit is completed as recited in amended claim 21.

Additionally, the asserted combination of references fails to teach or suggest a method of performing wireless data communications including, inter alia, establishing a first call to a mobile data network interworking unit and then establishing a first traffic channel, calling the first mobile station at the mobile data network interworking unit, establishing a second call to the mobile data network interworking unit when a data response comes from a first mobile station and then establishing a second traffic channel after the mobile data path connection module informs a public network data path connection control module of a normal state of the first data path, establishing a call between a mobile switching center and the mobile data network interworking unit through the second data path, and connecting the first and second traffic channels through at least one modem of the mobile data network interworking unit, as recited in claim 35.

Shrader relates to a system and method for using an integrated services digital network (ISDN) for mobile systems. Specifically, Shrader teaches a protocol for setting up a call using ISDN signaling messages. When the calling user initiates the ISDN call, the ISDN telephone that is used to place a call provides a dial tone. When a telephone number of a called party is entered, a setup service that is specially defined for ISDN is transmitted to the ISDN network. Assuming the ISDN setup message is valid, the ISDN network sends a setup message to the called user. When the network receives a connect

message from the called ISDN telephone, the network sends another connect message to the calling ISDN telephone. This sets up a path to handle "the actual human voice communications." See column 7, lines 3-65.

Shrader also discloses a procedure to take down the ISDN call after the call has been set up. This procedure includes that a user initiates the take-down procedure by hanging up the ISDN telephone causing a disconnect message to be sent to the network. The network then initiates a disconnect message to the called user, and returns a release message to the calling user. At this point, the calling ISDN telephone sends a release complete message to the network thus terminating the ISDN connection. See column 8, lines 7-29.

Additionally, according to the teachings of Shrader, each base station must include an ISDN call appearance call handling (CACH) electronic key telephone service (EKTS) port.

Accordingly, Shrader fails to teach or suggest a wireless data communication method using first and second data network interworking units, each having at least one modem. It is noted that the ISDN circuits are not equivalent to a interworking unit. Shrader further fails to teach or suggest releasing the traffic channel between the mobile communication control module and the public network data path connection control

module when the call establishment between the public network data path connection control module and the second mobile data network interworking unit is completed. Moreover, as the Patent Office admits, Shrader fails to teach or suggest using a mobile switching center.

The Patent Office thus relies on Jacobsohn to teach those features that are neither taught nor suggested in Shrader. Jacobsohn is described above. As described above, Jacobsohn teaches a centralized interworking function for a mobile radio network. Thus, Jacobsohn fails to teach or suggest first and second data network interworking units, each having at least one modem. Jacobsohn further fails to teach or suggest releasing the traffic channel. Finally, although Jacobsohn recites a mobile switching center, Jacobsohn fails to provide any details regarding the mobile switching center.

Consequently, the asserted combination of references fails to teach or suggest all of the features of independent claims 10, 21, and 35. Hence, a prima facie case of obviousness has not been made. Claims 11, 13, 16, and 17 depend from claim 10, and claim 36 depends from claim 35. These dependent claims are allowable for at least the reasons discussed above with respect to the corresponding independent claims. Consequently, it is respectfully requested that this rejection be withdrawn.

Claims 9 and 30 stand rejected under 35 U.S.C. § 103(a) over Boudreau, in view of Jacobsohn, and further in view of Sauer et al. (U.S. Patent No. 6,049,543) (hereinafter "Sauer"). This rejection is respectfully traversed.

Claim 9 depends from claim 1 and claim 30 depends from claim 27. These claims are discussed above with respect to Boudreau and Jacobsohn. It is respectfully submitted that Sauer fails to teach or suggest those features that are neither taught nor suggested by Boudreau or Jacobsohn. Consequently, claims 9 and 30 are allowable for at least the reasons discussed above with respect to claims 1 and 27. Consequently, a prima facie case of obviousness has not been made, and it is respectfully requested that this rejection be withdrawn.

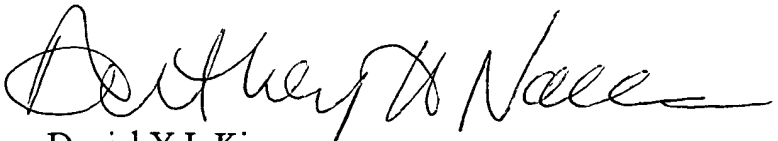
CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **Anthony H. Nourse**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of

this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
FLESHNER & KIM, LLP



Daniel Y.J. Kim
Registration No. 36,186
Anthony H. Nourse
Registration No. 46,121

P.O. Box 221200
Chantilly, VA 20153-1200
703 502-9440 DYK:AHN/jad
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